# Seabrook Town Beach, Seabrook

# BEACH WATER QUALITY REPORT
# SUMMER 2004

February 2005

Prepared by: Alicia Carlson and Sara Sumner

Healthy Swimming Through Clean Water

NHDES Beach Program (603) 271-3503

NEW HAMPSHIRE DEPARTMENT OF Environmental Services

## BACKGROUND

The New Hampshire Department of Environmental Services (NHDES) has operated its Public Beach Inspection Program, or Beach Program, for over twenty years. Coastal beach monitoring began in 1989 and has continued through the present. NHDES recognizes the threat to public health at public beaches and continues to monitor public beaches throughout the state for the presence of pathogenic organisms. Coastal beaches are monitored for the presence of the fecal bacteria Enterococci. These fecal bacteria are present in the intestines of warm-blooded animals including humans. Fecal bacteria, when present in high concentrations and ingested, can commonly cause gastrointestinal illnesses such as nausea, vomiting and diarrhea. They are also known as indicator organisms, meaning their presence in water may indicate the presence of other potentially pathogenic organisms.

In October of 2000, the United States Environmental Protection Agency (EPA) signed into law the Beaches Environmental Assessment and Coastal Health (BEACH) Act. The BEACH Act is an amendment to the Clean Water Act that authorizes the EPA to award grants to eligible states. The purpose of the BEACH Act is to reduce the risk of disease to users of the nation's recreational waters. BEACH Act grants provide support for development and implementation of monitoring and notification programs that help protect the public from exposure to pathogenic microorganisms in coastal recreation waters.

NHDES received grant funding in 2002 to develop and implement a beach monitoring and notification program consistent with EPA's performance criteria requirements published in the *National Beach Guidance and Required Performance Criteria for Grants* document (www.epa.gov/waterscience/beaches/grants). NHDES has successfully met all requirements and continues to expand the monitoring and notification program. In 2002, only 9 coastal beaches were monitored, in 2003 fifteen coastal beaches and in 2004 sixteen coastal beach were monitored on a routine basis.

# Table of Contents



# List of Figures



# List of Tables

## Beach Description

Seabrook Town Beach is a soft sand beach with numerous sand dunes that are home to nesting avian species. Its total length is 5,018 feet as it stretches from the Massachusetts border north to Sun Valley Beach. The beach is frequently used by residents and vacationers for various recreational activities. There are 15 main access points to Seabrook Beach from the neighborhood and parking areas. Parking in most areas is only for town residents with a permit. Lifeguards are not present and sanitary facilities are not available during the beach season.

Waterfowl are often observed at the beach, although generally in small numbers. The sand dunes are home to nesting pairs of Piping Plovers. The most commonly seen waterfowl on the beach are gulls. Although dogs have been sighted on the beach, they are restricted from the beach and are not a cause for concern.

Below is a brief description of the sampling stations at Seabrook Town Beach, Seabrook. The stations are pictured in Figure 1.

- The right sample station is located off Route 1A at the end of New Hampshire Street. Parking is at the end of the road and access to the beach is a sandy path between two houses.

- The center station is located at the end of Dracut Street off Route 1A. Parking is at the end of the road and access to the beach is via a public boardwalk.

- The left station is located at the end of Hooksett Street off Route 1A. There is a wide entrance to the beach with a boardwalk. Parking is on the road.

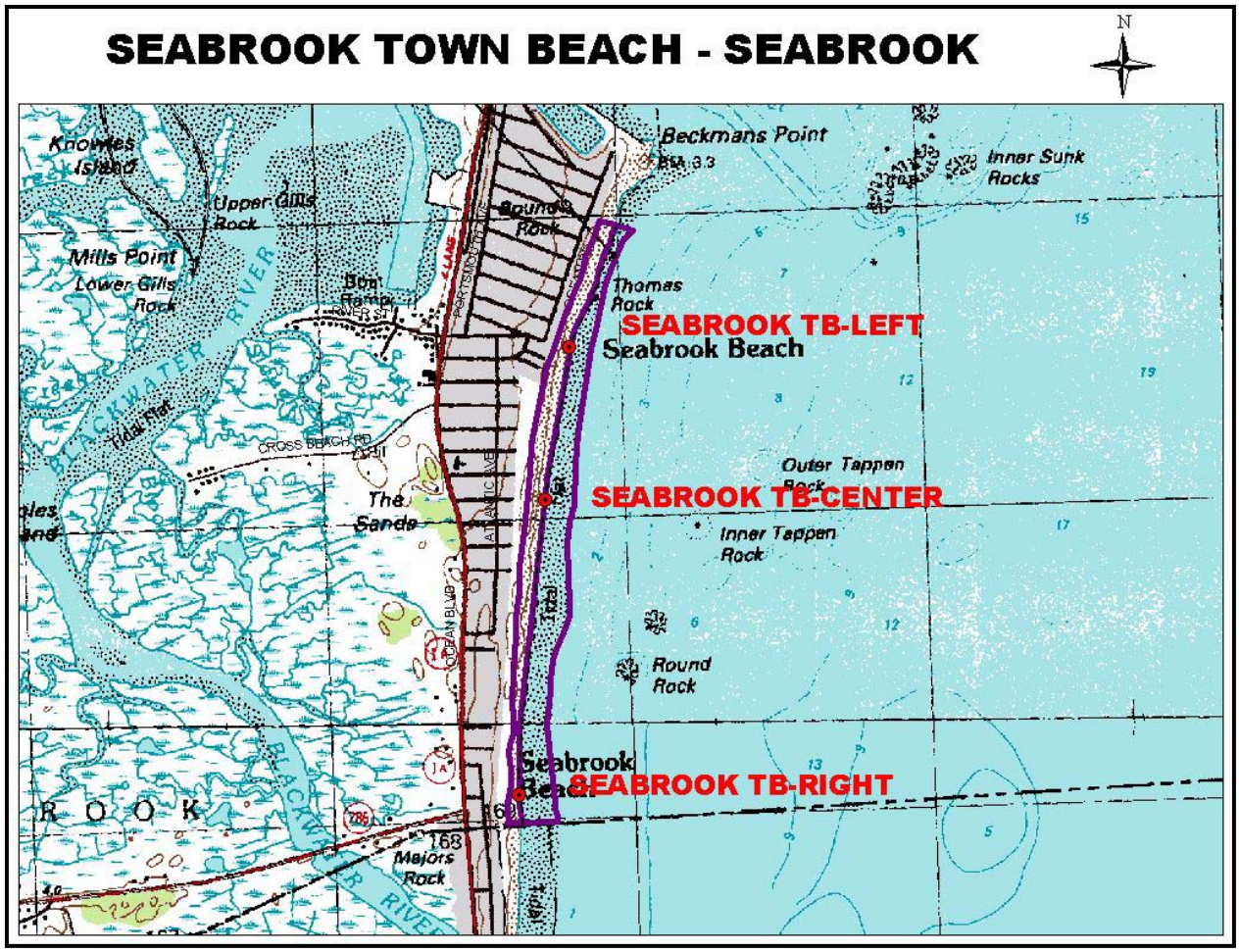


**Figure 1. Map of Seabrook Town Beach**

## Tier Status and Sampling Frequency

The Beach Program developed a risk-based beach evaluation process and tiered monitoring approach and implemented this approach during the 2003 beach season. Beach evaluations are conducted annually to determine potential health threats to the public. Evaluations are based on several criteria in three main categories: beach history, microbial pathogen sources, and beach use. Based on these criteria, beaches are assigned either a Tier I or Tier II status. Tier I are high priority beaches that have an increased potential to affect public health while Tier II are low priority beaches that have less potential to affect public health. Beach sample frequency is based on the Tier statuses; Tier I beaches are sampled weekly and Tier II beaches are sampled every other week.

Seabrook Town Beach was categorized as a Tier I beach based on the Beach Program's Risk-Based Evaluation ranking system. This ranking indicates that the beach is frequently used by the public and potential pollution sources that may negatively affect public health are present. The

Seabrook Town Beach Tier I ranking has not changed since the ranking system was implemented.

## Water Quality

Beaches are monitored to ensure compliance with State Water Quality Standards. Marine waters are analyzed for the presence of the fecal bacteria Enterococci. Enterococci are known as indicator organisms, meaning their presence may indicate the presence of pathogenic bacteria. The state standard for Enterococci at public beaches is 104 counts/100 mL in one sample, or a geometric mean of 35 counts/100 mL in three samples collected over sixty days. Standard exceedances require the issuance and posting of a beach advisory. Beach advisories remain in effect until subsequent beach sampling indicates safe water quality conditions.

The number of samples collected at each beach is determined by the beach length. Beaches less than 100 feet in length are sampled at left and right locations 1/3 of the distance from either end of the beach. Beaches greater than 100 feet in length are bracketed into thirds and sampled at left, center and right locations. Routine sample collection may be enhanced by sampling known or suspected pollution sources to the beach area. Also, storm event sampling may be conducted at beaches where wet-weather events are expected to affect beach water quality.

The 2004 sampling season began June 1st. June was cooler and drier than normal, July was cooler and wetter than normal, while August was warmer and wetter than normal. The sampling season encompassed 108 days, of which precipitation was recorded on 42 days (based on Seabrook WWTF recorded precipitation). Twenty beach days (normal beach hours are considered 9:00 a.m. to 5:00 p.m.) were directly affected by precipitation.

Seabrook Town Beach was sampled once per week from June 1st through Labor Day. Pre-season wet weather sampling occurred in April and May. There were a total of 15 inspections performed and 45 samples collected during the 2004 sampling season. Three samples were collected at left, center and right stations (Figure 1).

Table 1 includes Enterococci data from each sampling event in 2004. Overall, the Enterococci levels were very low. No advisories were issued for Seabrook Town Beach in 2004.

**Table 1. Seabrook Town Beach Enterococci Data 2004**

| Sample Date | Station Name | Results (counts per 100 mL) |
|---|---|---|
| 05/17/2004 | Seabrook TB – Left | <10 |
| | Seabrook TB – Center | <10 |
| | Seabrook TB – Right | <5 |
| 06/01/2004 | Seabrook TB – Left | <10 |
| | Seabrook TB – Center | <10 |
| | Seabrook TB – Right | <10 |
| 06/07/2004 | Seabrook TB – Left | <10 |
| | Seabrook TB – Center | <10 |
| | Seabrook TB – Right | <10 |
| 06/15/2004 | Seabrook TB – Left | <10 |
| | Seabrook TB – Center | <10 |
| | Seabrook TB – Right | <10 |
| 06/21/2004 | Seabrook TB – Left | <10 |
| | Seabrook TB – Center | <10 |
| | Seabrook TB – Right | <10 |
| 06/28/2004 | Seabrook TB – Left | <10 |
| | Seabrook TB – Center | <10 |
| | Seabrook TB – Right | <10 |
| 07/07/2004 | Seabrook TB – Left | <10 |
| | Seabrook TB – Center | <10 |
| | Seabrook TB – Right | <10 |
| 07/14/2004 | Seabrook TB – Left | <10 |
| | Seabrook TB – Center | 60 |
| | Seabrook TB – Right | 130 |
| 07/19/2004 | Seabrook TB – Left | 40 |
| | Seabrook TB – Center | <10 |
| | Seabrook TB – Right | <10 |
| 07/26/2004 | Seabrook TB – Left | <10 |
| | Seabrook TB – Center | <10 |
| | Seabrook TB – Right | <10 |
| 08/03/2004 | Seabrook TB – Left | <10 |
| | Seabrook TB – Center | <10 |
| | Seabrook TB – Right | 10 |
| 08/09/2004 | Seabrook TB – Left | <10 |
| | Seabrook TB – Center | <10 |
| | Seabrook TB – Right | <10 |
| 08/17/2004 | Seabrook TB – Left | <10 |
| | Seabrook TB – Center | <10 |
| | Seabrook TB – Right | <10 |
| 08/25/2004 | Seabrook TB – Left | <10 |
| | Seabrook TB – Center | <10 |
| | Seabrook TB – Right | <5 |
| 08/30/2004 | Seabrook TB – Left | <10 |
| | Seabrook TB – Center | <10 |
| | Seabrook TB – Right | <10 |

Figure 2 depicts the Enterococci data in relation to the state standard for coastal beaches. Only one sample collected on July 14, 2004 reflected Enterococci levels above the state standard for designated public beaches. The right sample result was 130 counts/100 mL and the center sample was also slightly elevated. There is no direct evidence as to what caused the elevated Enterococci levels. Subsequent samples indicated Enterococci levels returned to normal levels.

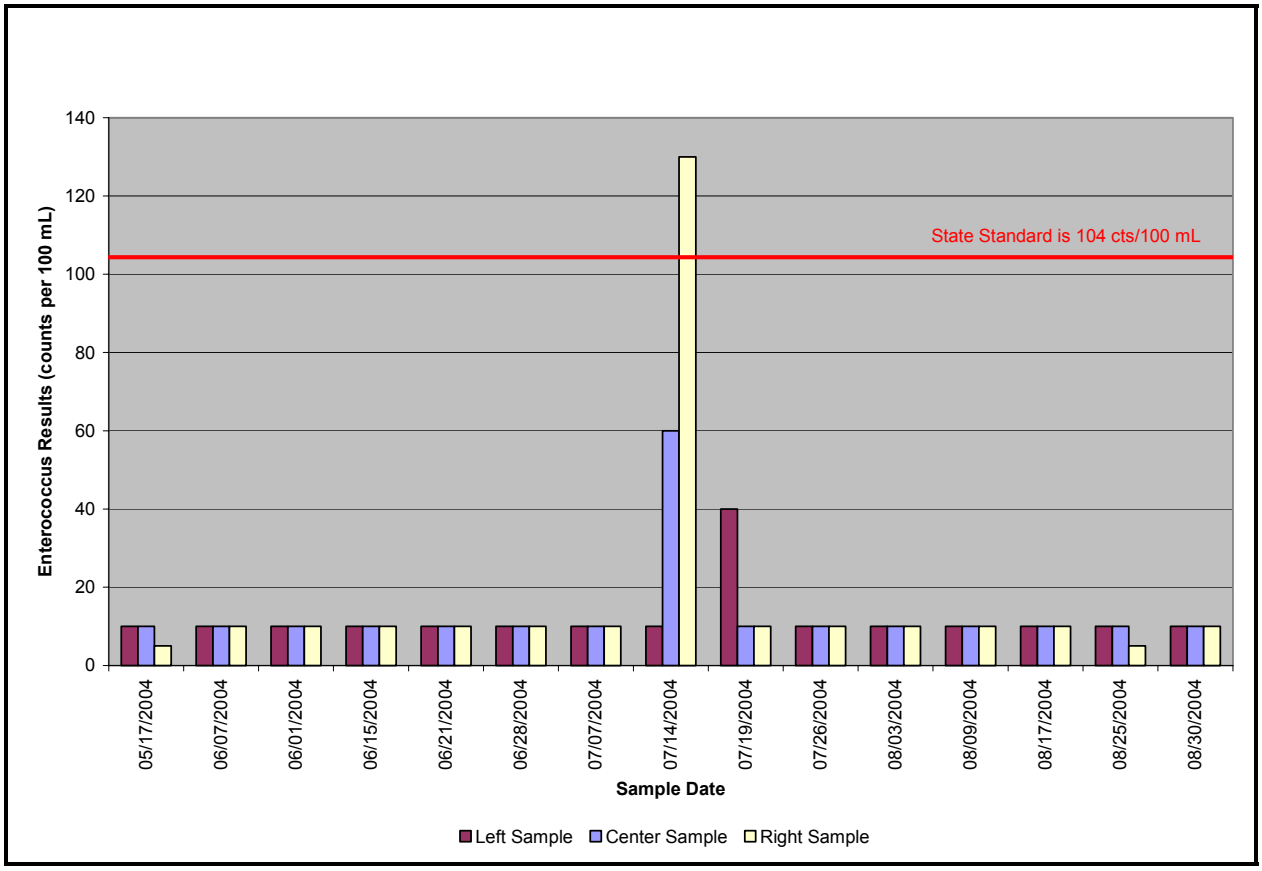


**Figure 2. Seabrook Town Beach Enterococci Data 2004**

The Beach Program staff analyzed whether a relationship exists between elevated Enterococci levels and precipitation at Seabrook Town Beach. Analyses of the data indicate no direct correlation. DES will continue to monitor precipitation data and Enterococci levels. Precipitation often causes elevated bacteria levels due to runoff in the watershed.

## Areas of Concern

In the spring of 2004, Seabrook Harbor was dredged to remove excess sediment. Some of the dredged materials were spread on Seabrook Town Beach and Sun Valley Beach. Beach Program staff were initially concerned that this imported material may have contained bacteria or other

pollutants. However, the addition of the dredged material did not appear to affect the water quality at these beaches.

There is concern over the presence of a nearby wastewater treatment outfall. The Seabrook Waste Water Treatment Plant outfall is located 2000 feet offshore at the southern end of Seabrook Town Beach. Since system failure may jeopardize public health, an emergency response system must be in place to minimize impacts to the public. The Plant Manager notifies DES Shellfish Program staff during system failure. DES Shellfish Program staff promptly notifies Beach Program staff. Water quality samples are then collect by both programs. Historically, there has been no evidence of negative impacts on water quality at Seabrook Town Beach due to wastewater treatment facility failures. The emergency response protocol will help protect public health by engaging a sampling program.

## Thoughts for the Future

- Since Seabrook Town Beach is nearly one mile in length, three sample stations may not be sufficient to protect public health. We recommend adding two additional stations between the right and center stations and the center and left stations.

- The Seabrook Beach Committee, local businesses, or school group should consider joining NHDES' Adopt-a-Beach Program. The program would consist of beach clean-ups and water quality monitoring. DES would conduct training sessions and participate in education and outreach activities for the community. If you are interested, please contact Sara Sumner at 603-271-8803 or ssumner@des.state.nh.us.

- The Town of Seabrook and the Beach Management Committee have done an excellent job protecting Seabrook Beach. We applaud you for your diligent efforts in maintaining a safe and healthy environment for the public to enjoy.